

## CERTIFICATE OF ANALYSIS

Thermo Fisher Scientific's Quality System has been found to conform to Quality Management System Standard ISO9001:2015 by TUV SUD America Inc.  
 Certificate Number. 951001163

Catalogue Number	011181
Lot Number	X10L040
Description	Yttrium(III) oxide, REacton®, 99.99% (REO)
CAS Number	1314-36-9
Quality Test/Release Date	13/Oct/2025
Suggested retest date	13/Oct/2030
Country of Origin	China
Declaration of Origin	Synthetic
BSE/TSE	Not directly derived from or manufactured with any animal byproducts in any way (including but not limited to fermentation or nutrient broth, catalysts, enzymes).

Result Name	Units	Specifications	Test Value
Assay (special)	%	≥99.99% of total rare earth oxides	>99.999
Chloride content	ppm	≤500ppm	<30
Impurity content	ppm	Calcium oxide, CaO: ≤100ppm	1.3
Impurity content	ppm	Cerium oxide, CeO <sub>2</sub> : ≤10ppm	<1
Impurity content	ppm	Dysprosium oxide, Dy <sub>2</sub> O <sub>3</sub> : ≤50ppm	<1
Impurity content	ppm	Erbium oxide, Er <sub>2</sub> O <sub>3</sub> : ≤100ppm	1
Impurity content	ppm	Europium oxide, Eu <sub>2</sub> O <sub>3</sub> : ≤10ppm	<1
Impurity content	ppm	Gadolinium oxide, Gd <sub>2</sub> O <sub>3</sub> : ≤10ppm	<1
Impurity content	ppm	Holmium oxide, Ho <sub>2</sub> O <sub>3</sub> : ≤500ppm	1
Impurity content	ppm	Iron oxide, Fe <sub>2</sub> O <sub>3</sub> : ≤10ppm	<1
Impurity content	ppm	Lanthanum oxide, La <sub>2</sub> O <sub>3</sub> : ≤10ppm	<1
Impurity content	ppm	Lutetium oxide, Lu <sub>2</sub> O <sub>3</sub> : ≤10ppm	<1
Impurity content	ppm	Neodymium oxide, Nd <sub>2</sub> O <sub>3</sub> : ≤10ppm	<1
Impurity content	ppm	Potassium oxide, K <sub>2</sub> O: ≤100ppm	<5
Impurity content	ppm	Praseodymium oxide, Pr <sub>6</sub> O <sub>11</sub> : ≤10ppm	<1
Impurity content	ppm	Samarium oxide, Sm <sub>2</sub> O <sub>3</sub> : ≤10ppm	<1
Impurity content	ppm	Silicon oxide, SiO <sub>2</sub> : ≤100ppm	16
Impurity content	ppm	Sodium oxide, Na <sub>2</sub> O: ≤100ppm	<5
Impurity content	ppm	Terbium oxide, Tb <sub>4</sub> O <sub>7</sub> : ≤10ppm	1
Impurity content	ppm	Thulium oxide, Tm <sub>2</sub> O <sub>3</sub> : ≤10ppm	<1
Impurity content	ppm	Total alkaline earths (Be, Mg, Ca, Sr, Ba, Ra): ≤75ppm	0
Impurity content	ppm	Ytterbium oxide, Yb <sub>2</sub> O <sub>3</sub> : ≤10ppm	<1
Loss on ignition	%	≥1.0%	0.97
Total rare earth oxides	%	≥99.0%	99.44

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of the catalogue number listed above.



Derek Roy  
Quality Manager, LCD

Products are processed under ISO 9001:2015 quality management systems and samples are tested for conformance to the noted specifications. Certain data may have been supplied by third parties. We disclaim the implied warranties of merchantability and fitness for a particular purpose, and the accuracy of third-party data or information associated with the product. Products are for research and development use only. Products are not for direct administration to humans or animals. It is the responsibility of the final formulator or end user to determine suitability, and to qualify and/or validate each product for its intended use.

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of the catalogue number listed above.